

# Hard Probes in Heavy Ion Collisions at the LHC: PDFs, Shadowing and $pA$ Collisions

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## Abstract

This manuscript is the outcome of the subgroup “PDFs, shadowing and  $pA$  collisions” from the CERN workshop “Hard Probes in Heavy Ion Collisions at the LHC”[1]. In addition to the experimental parameters for  $pA$  collisions at the LHC, the issues discussed are factorization in nuclear collisions, nuclear parton distributions (nPDFs), hard probes as the benchmark tests of factorization in  $pA$  collisions at the LHC, and semi-hard probes as observables with potentially large nuclear effects. Also, novel QCD phenomena in  $pA$  collisions at the LHC are considered. The importance of the  $pA$  program at the LHC is emphasized.

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[1] A. Accardi et al. (2003), hep-ph/0308248.